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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/828,530	04/06/2004	Laszlo J. Keeskes	ARL 03-60	4322
21364 7590 06/23/2009 U S ARMY RESEARCH LABORATORY ATTN AMSRL CS CC IP 2800 POWDER MILL RD ADELPHI, MD 207831197				
EXAMINER WYSZOMIERSKI, GEORGE P				
ART UNIT 1793		PAPER NUMBER		
MAIL DATE 06/23/2009		DELIVERY MODE PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/828,530

**Applicant(s)**

KECSKES ET AL.

**Examiner**

George P. Wyszomierski

**Art Unit**

1793

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 May 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3, 5-16 and 18-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16, 18-29, 32 and 33 is/are allowed.
- 6) ☒ Claim(s) 1-3, 6, 9, 11-15, 30, 31 and 34-40 is/are rejected.
- 7) ☒ Claim(s) 5, 7, 8 and 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

1. The Amendment filed May 12, 2009 has been entered. Claims 1-3, 5-16, and 18-40 are pending in this application.
2. Claims 30, 31 and 35-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The preamble of each of these claims should be changed to read "The method...", because the independent claims are directed to a method.
3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
4. Claims 1, 2, 3, 6, 9, 11-15, and 34-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Gu et al. Journal of Non-Crystalline Solids article (reference A5 on the IDS filed April 6, 2004).

Gu disclose a bulk metallic glass including (from page 79 and Table 1 of Gu) some combination of Hf, Zr, Ni, Al and Ti. The examiner's position is that if "x" in the formula of Gu is equal to approximately 0.8, then an alloy according to the instant claims would be produced. From Table 1 of Gu, it can be seen that such an alloy would have a density greater than 7 g/cm<sup>3</sup> and a ratio of glass transition temperature to melting temperature as recited in the instant

claims. Gu discloses making samples of the prior art alloys that are 3 mm in their smallest dimension by arc melting and suction casting.

Gu does not disclose any specific example that meets all of the compositional limitations as presently claimed, i.e. Gu does not disclose an example where "x" is 0.8, and does not teach the various eutectic or invariant combination(s) stated or implied by instant claims 34-39. The examiner's position is that page 79, Table 1, and Figs. 2 and 3 of Gu disclose sufficient information to one of skill in the art that all values of "x" between 0 and 1 would fall within the purview of Gu, including those values which would result in the presently claimed alloy compositions.

Thus, a prima facie case of obviousness is established between the disclosure of Gu et al. and the presently claimed invention.

5. In the response filed May 12, 2009 (including a second declaration by Dr. Kecskes) Applicant alleges (and Declarant states) that the claimed invention can be distinguished from the prior art in that the present invention is a quinary alloy as opposed to a senary alloy disclosed by Gu, and/or that the density of the inventive alloy is different from those of the prior art. Applicant's arguments have been carefully considered, but are not persuasive of patentability because:

a) The rejected claims are not limited to a quinary alloy, e.g. claim 1 recites that "Y comprises" certain elements and therefore may further include additional elements as well.

b) With regard to density, the materials disclosed by Gu have a density of at least 7 g/cm<sup>3</sup> as recited in instant claim 1. The examiner does note, however, that the Kecskes Declaration indicates that the alloys of the present invention unexpectedly

have a density of about 10.5 g/cm<sup>3</sup> and therefore claims that recite this property are no longer rejected over Gu.

6. Claims 5, 7, 8 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The Kecskes Declaration clearly indicates materials defined in claim 5 to be unobvious over the prior art of record. The prior art does not disclose or suggest a metallic glass alloy having the compositional limitations recited in claims 7, 8 and 10. Also, claims 16, 18-29, 32 and 33 are allowable over the prior art of record, and claims 30 and 31 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Wyszomierski whose telephone number is (571) 272-1252. The examiner can normally be reached on Monday thru Friday from 8:00 a.m. to 4:30 p.m. Eastern time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on (571) 272-1244. All patent application related correspondence transmitted by facsimile must be directed to the central facsimile number, (571)-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/George Wyszomierski/  
Primary Examiner  
Art Unit 1793

GPW  
June 19, 2009